

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

ECUADOR

SUSTAINABLE DEVELOPMENT PROGRAM FOR THE NORTHERN AMAZON BORDER ZONE OF ECUADOR

(EC-0201)

LOAN PROPOSAL

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ABBREVIATIONS

ACC	Asociación de Cafeteros de Colombia [Colombian Coffee Growers' Association]
AWP	Annual Work Plan
BPP	Bosque Protector Pañacocha [Pañacocha Forest reserve]
C&V	Control y Vigilancia [Control and Supervisión]
CARE	CARE Ecuador
CIAM	Centro de Información Ambiental [Environment Information Center]
COF/CEC	IDB Country Office in Ecuador
COFANES	Fundación de Sobrevivencia de Cofán [Cofán Survival Foundation]
CONFENIAE	Confederación de Nacionalidades Indígenas de la Amazonía Ecuatoriana [Confederation of Indigenous Peoples of the Ecuadorian Amazon]
CORECAF	Corporación Ecuatoriana de Cafeteros [Coffee-growers' association]
CRS	Swiss Red Cross
DNP	National Parks Directorate
ECORAE	Instituto para el Ecodesarrollo de la Región Amazónica [Institute for Ecodevelopment in the Amazon Region]
FAP	Fondo de Áreas Protegidas [Protected Areas Fund]
FECOCC	Federación de Cooperativas de Colonos de Cuyabeno [Cuyabeno Federation of Settlers' Cooperatives]
FEPP	Fondo Ecuatoriano Populorum Progreso
FOCAN	Federación de Organizaciones Campesinas de Aguas Negras
FOISE	Federación de Organizaciones Indígenas de Sucumbíos
FSO	Fund for Special Operations
FUNEDESIN	Fundación para la Educación y Desarrollo Integral
GEF	Global Environment Facility
GTT	Technology Transfer Groups
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit [German Technical Cooperation Agency]
IDB	Inter-American Development Bank
IICA	Inter-American Institute for Cooperation on Agriculture
INAMHI	Instituto Nacional de Meteorología e Hidrografía
INDA	Instituto Nacional de Desarrollo Agrario
INIAP	Instituto Nacional de Investigaciones Agropecuarias

IOM	International Organization for Migration
IRR	Internal rate of return
KFW	Kreditanstalt für Wiederaufbau
MAE	Ministry of Environment of Ecuador
MIDUVI	Ministry of Urban Development and Housing
NGO	Non-governmental Organization
NRI	National Resources Institute
O&M	Operation and maintenance
OC	Ordinary Capital
OR	Operating Regulations
OS	Operations Supervisor
PA	Protected Area
PAU	Program Administration Unit
PETRAMAZ	Environmental Management Project: Petroleum Exploitation and Sustainable Development in the Ecuadorian Amazon
PEU	Program Execution Unit
PMR	Reserve Management Plan
PRODEPINE	Programa de Desarrollo de Pueblos Indígenas y Negros de Ecuador
RANE	Región Amazónica Norte de Ecuador [North Amazon Region of Ecuador]
RPFC	Reserva de Producción Faunística de Cuyabeno [Cuyabeno Wildlife Preserve]
SAP	Protected Areas System
SNAP	National Protected Areas System
TC	Technical Cooperation
TCA	Amazon Cooperation Treaty
TOR	Terms of Reference
UDENOR	Unidad de Desarrollo Norte
UMDS	Unidades Municipales de Desarrollo Sostenible [Municipal sustainable development units]
UNDP	United Nations Development Program
USAID	US Agency for International Development
ZEE	Zonificación Económica Ecológica [Economic and Ecological Zoning]

SUSTAINABLE DEVELOPMENT PROGRAM FOR THE
NORTHERN AMAZON PROVINCES OF ECUADOR (EC-0201)



This map, prepared by the Inter-American Development Bank, has not been approved by any competent authority and its inclusion in the loan document has the exclusive objective of indicating the area of influence of the project proposed for financing.



ECUADOR

IDB LOANS

APPROVED AS OF JUNE 30, 2002

	<i>US\$Thousand</i>	<i>Percent</i>
TOTAL APPROVED	3,719,024	
DISBURSED	3,486,659	93.8%
UNDISBURSED BALANCE	232,365	6.2%
CANCELLATIONS	503,162	13.5%
PRINCIPAL COLLECTED	1,495,784	40.2%
APPROVED BY FUND		
ORDINARY CAPITAL	2,697,959	72.5%
FUND FOR SPECIAL OPERATIONS	933,378	25.1%
OTHER FUNDS	87,687	2.4%
OUTSTANDING DEBT BALANCE	1,990,874	
ORDINARY CAPITAL	1,373,577	69.0%
FUND FOR SPECIAL OPERATIONS	609,003	30.6%
OTHER FUNDS	8,294	0.4%
APPROVED BY SECTOR		
AGRICULTURE AND FISHERY	1,077,410	29.0%
INDUSTRY, TOURISM, SCIENCE TECHNOLOGY	446,375	12.0%
ENERGY	316,781	8.5%
TRANSPORTATION AND COMMUNICATIONS	315,912	8.5%
EDUCATION	208,769	5.6%
HEALTH AND SANITATION	365,997	9.8%
ENVIRONMENT	46,021	1.2%
URBAN DEVELOPMENT	210,329	5.7%
SOCIAL INVESTMENT AND MICROENTERPRISE	296,156	8.0%
REFORM PUBLIC SECTOR MODERNIZATION	405,297	10.9%
EXPORT FINANCING	0	0.0%
PREINVESTMENT AND OTHER	29,976	0.8%

* Net of cancellations with monetary adjustments and export financing loan collections



INTER-AMERICAN DEVELOPMENT BANK
Regional Operations Support Office
Operational Information Unit

ECUADOR

STATUS OF LOANS IN EXECUTION AS OF JUNE 30, 2002

(Amounts in US\$ thousands)

APPROVAL PERIOD	NUMBER OF PROJECTS	AMOUNT APPROVED	AMOUNT DISBURSED	% DISBURSED
Before 1996	5	219,453	212,770	96.95%
1996 - 1997	8	253,600	195,851	77.23%
1998 - 1999	3	104,500	55,005	52.64%
2000 - 2001	9	251,520	133,459	53.06%
TOTAL	25	\$829,073	\$597,085	72.02%

* Net of Cancellations . Excluding export financing loans.



Inter-American Development Bank
Regional Operations Support Office
Operational Information Unit

Ecuador

Tentative Lending Program

2002

Project Number	Project Name	IDB US\$ Millions	Status
EC0207	Housing Sector Support Program II	25.0	
EC0201	Sustainable Develop. Northern Amazon Region	10.0	
EC0200	Environmental Sanitation of Quito Metropolitan District	40.0	
EC0213	Deepening Rural Financial Services	3.5	
Total - A : 4 Projects		78.5	
EC0101	Strengthening of the Seguro Social Campesino	5.0	
Total - B : 1 Projects		5.0	
TOTAL 2002 : 5 Projects		83.5	

2003

Project Number	Project Name	IDB US\$ Millions	Status
EC0132	National Road Rehabilitation Program I	35.0	
EC0199	Citizenship Security National Townships	10.0	
EC0139	Municipal Development II (PDM II)	40.0	
EC0205	Innovation and Technological Development Program	20.0	
EC0193	Coastal Resource Management Program II	13.0	
EC0211	Rural Transport Infrastructure Program II	20.0	
EC0185	Porte Medio Urban Transport	15.0	
EC0210	Institutional Strengthening of the Ministerio de Obras Publicas	2.0	
Total - A : 8 Projects		155.0	
*EC0214	Pichincha Bank	18.0	
Total - B : 1 Projects		18.0	
TOTAL - 2003 : 9 Projects		173.0	

Total Private Sector 2002 - 2003	18.0
Total Regular Program 2002 - 2003	238.5

*** Private Sector Project**

SUSTAINABLE DEVELOPMENT PROGRAM FOR THE NORTHERN AMAZON BORDER ZONE OF ECUADOR

(EC-0201)

EXECUTIVE SUMMARY

Borrower and guarantor:	Government of Ecuador	
Executing agency:	Unidad de Desarrollo del Norte (UDENOR) Ministry of Environment of Ecuador (MAE)	
Amount and source:	IDB: (OC)	US\$10.0 million
	Local:	US\$ 2.5 million
	Total:	US\$12.5 million
	Technical-cooperation funding (FSO):	US\$0.5 million
Financial terms and conditions:	Amortization period:	25 years
	Grace period:	4 years
	Disbursement period:	3.5 years
	Interest rate:	variable (OC conditions)
	Inspection and supervision:	1%
	Credit fee:	0.75%
Objectives:	Currency:	Single Currency Facility in US dollars
	The general objective of the program is to define a development model for Ecuador's Northern Amazon Region [Región Amazónica Norte] (RANE) that will meet the aspirations of residents there in terms of improving their economic welfare while assuring the continued and sustainable supply of the region's rich environmental resources. This objective will be pursued through a scheme that includes support for initiatives to raise family incomes and to strengthen portions of the Protected Areas System (SAP) that are located in the RANE.	

The program has a limited geographic scope within the RANE. Its specific objectives are: (i) to support productive projects that will raise incomes for small-scale rural producers while improving basic health and sanitary conditions, (ii) to protect the natural resources, biodiversity and genetic heritage within the Cuyabeno Wildlife Preserve (RPFC) and its buffer zone; and (iii) to improve information systems.

Description:

The program has three components: (i) support for sustainable development activities and basic sanitation; (ii) consolidation of protected areas (PA) and sustainable use of biodiversity; and (iii) information and monitoring system.

1. Productive support for sustainable development (US\$4.8 million)

This component addresses the needs of rural producers in currently occupied areas that are zoned for farming. The project will encourage farmers to shift out away from low-productivity agricultural activities, under a production chain development model, to adopt practices appropriate to local agro-ecological conditions, and to diversify their output, including efforts to incorporate added value to the output of 4,000 households now living below the poverty line.

As a supplement to productive activities, the project will educate the community and help improve environmental sanitation and health conditions on rural properties by financing studies and small-scale basic sanitation works (safe drinking water, sanitary sewers, sewage disposal systems) proposed by community organizations and a scattered rural population.

2. Consolidation of the Protected Areas (PAs) and sustainable use of biodiversity (US\$4.4 million)

The project will focus exclusively on the RPFC, which has been identified as having the greatest degree of biological diversity in the zone.

This component includes the following activities: (i) surveying and establishing the boundaries of the RPFC, regularizing land-ownership and providing legal title for indigenous groups within the area and its buffer zones; (ii) improving control and supervision of the reserve; and (iii) financing projects to make productive use of biodiversity.

A number of promising projects have been identified for making productive use of biodiversity. These include the use of non-wood resources of the forest, ecotourism and cultural tourism, the

preservation of native knowledge, and the breeding of species in captivity. Projects will be determined by demand and submitted in accordance with the Operating Regulations (OR) and with the active participation of the communities. They will be undertaken as pilot/demonstration projects that can be replicated in local indigenous communities. In light of the zone's ecological fragility and the wealth of its biodiversity, only projects consistent with management plans of the neighboring Protected Areas (PAs) will be included.

3. Information and monitoring system (US\$1.09 million)

To improve the information system, the program will strengthen local institutions that provide specialized information for regional planning and development purposes. One such institution is the National Meteorology and Hydrology Institute (INAMHI), which will install rainfall and weather monitoring stations to support productive activities and river navigation; another is the Institute for Ecological Development of the Amazon Region (ECORAE), which provides mapping services and databases for the three provinces. The information that UDENOR-MAE will generate will be field-positioned and entered into this information system. The project will finance improvements in existing information systems in ECORAE and UDENOR. It will also strengthen the Environmental Information Center (CIAM) of the MAE, for mapping the reserve and its buffer zones at a scale of 1:25,000. Financing will also be provided for a radio station to broadcast in the indigenous languages.

The role of the project in the Bank's strategy for the country and sector:

The program serves the border area with Colombia, which was singled out for special attention in the Country Paper (GN-2169-1). It focuses on the RANE, which borders Colombia to the north and Peru to the east, a zone where eliminating illegal crops and drug trafficking is a priority concern.

Environmental and social review:

The environmental wealth and fragility of the Amazon Forest are associated with uncontrolled settlement, the opening of the agricultural border, the presence of major ethnic groups and the recent threat of public insecurity and drug trafficking as a spillover from the coca-producing region targeted by the Plan Colombia. The environmental and social strategy of the program is to make economic development compatible with the sustainable use of natural resources and the zone's great wealth of biodiversity. A participatory strategy was adopted to consult key players and beneficiaries on identifying and prioritizing programs and developing projects, taking as a frame of reference the Economic and Ecological Zoning framework (ZEE) prepared by the RANE.

By working with indigenous populations and farmers' organizations and enlisting park wardens from the community, the program will result in better environmental management and protection of PAs and will promote sustainable development. Eligibility criteria for projects include environmental factors and are consistent with the management plans for the PA and their buffer zones.

Basic sanitation works will improve living conditions for the rural population and reduce the incidence of waterborne diseases.

Benefits: The program will raise incomes for 4,000 small rural producers who are currently living below the poverty line, and will improve sanitary conditions for 1,000 of these families. In addition, the biodiversity projects will enhance incomes for indigenous peoples and give them more secure title to their land.

Risks: **Risk.** Weak management and limited institutional capacity. The central government has only a limited institutional presence, and the fledgling local governments have neither the human nor the financial resources to cope with the explosive growth of recent years. The scattered pattern of population distribution and environmental limitations create a very difficult setting. **Mitigating factor.** To reduce this risk, the project will encourage active local participation, working with grassroots organizations and NGOs, with a focus on projects to consolidate areas that are already occupied, and implementing a decentralized management system. Project execution will be supported by an Operations Supervisor (OS), who will have significant training and local experience.

Risk. Problems of insecurity and illegal activities. The Plan Colombia has added a new element of insecurity, particularly in a corridor extending some 10 kilometers along the border. This area was long a source of supply for guerrilla movements and narcotics processors, and was frequently used by these groups as a refuge. The presence of these groups, the illegal drug trade and the escalating violence constitute obstacles to legitimate activities and threats to public safety. **Mitigating factor.** To reduce these risks, the program will support preventive measures against the spread of illegal crops. The fieldwork will be conducted by institutions and individuals familiar with the zone. Local participation will be encouraged and governance will be enhanced by strengthening government institutions at the national and local levels.

**Special
contractual
clauses:**

1. **Special conditions precedent to the first disbursement:**
 - a. Establish the Program Administration Unit (PAU) in UDENOR, and hire the head of that unit (paragraph 3.5).

- Special contractual clauses:**
- b. Contract the Operations Supervisor (OS) for the Program (paragraph 3.6).
 - c. Approve and implement the Operating Regulations once the Bank has indicated its approval (paragraph 3.8).
 - d. Signature of the following agreements: (i) for execution of component I, agreements with the Small Coffee Producers Association and the Small Cacao Producers Association (paragraph 3.11); (ii) for execution of component II, agreement with MAE (paragraph 3.1) and evidence that funds are available to cover the recurrent costs of the RPFC (paragraph 4.13); (iii) for execution of component III, agreements between UDENOR and ECORAE, INAMHI and Confederación de Nacionalidades Indígenas de la Amazonía Ecuatoriana (CONFENIAE) (paragraph 3.23).

2. Conditions during execution:

- a. Before funds are disbursed for biodiversity exploitation projects, the agreement with the respective co-executing agency must be signed (paragraph 3.22).
- b. Completion of the midterm and final evaluations of the program (paragraph 3.25).

Poverty-targeting and social sector classification: This operation qualifies as a social equity-enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704). Furthermore, this operation qualifies as a poverty-targeted investment (PTI) (see paragraph 1.13).

Exceptions to Bank policy: No exceptions are requested.

Procurement: The procurement of goods and services and the contracting of works will be done by the OS in accordance with Bank procedures. International competitive bidding will be compulsory for goods and services exceeding US\$250,000, and for construction works exceeding US\$2 million. Consulting services will be contracted in accordance with Bank procedures.

At the executing agency's request, the institutions that support the small coffee and cacao growers associations and allocate the funding will be selected directly from the entities identified while the program was prepared and reviewed (paragraphs 3.9 and 3.10).

I. FRAME OF REFERENCE

A. The program zone

- 1.1 Ecuador, with its 256,370 square kilometers,¹ is the smallest of the 17 so-called megadiversity countries, and is part of two of the world's 24 most biodiverse hotspots: the Tropical Andes and the Chocó-Darién moist forest of eastern Ecuador. The Northern Amazon Region of Ecuador (RANE) covers 40% of the national territory and accounts for 80% of the country's biodiversity. In addition, the RANE is Ecuador's principal source of fresh water, with the country's largest tracts of forest, a great variety of ecosystems and most of the nation's oil and mineral reserves. Lastly, the RANE has great cultural wealth and is home to several indigenous peoples (Quichua, Shuar, Huaroani, Siona and Secoya) each with its own distinct culture and language (see Annex I: Map of Program Action Zones).
- 1.2 It is this wealth of natural resources that, with the opening of roads for oil exploration, has attracted growing numbers of settlers seeking opportunities linked directly or indirectly to hydrocarbon, farming and forestry activities. Unfortunately, the RANE is ecologically very fragile, and its soils are unsuitable for farming. Extractive industries in the region have caused severe environmental damage, and the arrival of settlers has led to conflicts with the ancestral occupants of the land.
- 1.3 The RANE is economically one of the most depressed regions of Ecuador: 57.3% of the population is indigent. The poverty level is over 79%, compared to the national rural poverty index of 47%, and the “unmet basic needs” index is 87.8%.² Since the poverty index in the project area is higher than the country's rural poverty index, the project classifies as a poverty-targeted investment.
- 1.4 The project area includes three of the five Amazonian provinces: Sucumbíos, Orellana and Napo, which are located in the border area with Colombia and Peru, and are impacted by activities under the Plan Colombia. The three provinces represent 46% of the RANE land area, and 19% of the national territory. The population is estimated at 300,000, and is mainly rural (66%). The population growth rate is estimated at 2.9%, with indigenous people accounting for about 25% of the total.
- 1.5 These socioeconomic factors have produced a structural setting that is complex and conflict-prone, in social, economic, political, cultural and environmental terms. The pattern of land settlement and management, which is spontaneous and

¹ The RANE covers five provinces. Three of these (Sucumbíos, Napo, and Orellana) form the area known as Amazonía Norte, and the other two (Pastaza and Zamora-Chinchipe) Amazonía Sur.

² Source: “Amazonía Ecuatoriana. Escenario y Actores del 2000”. Lucy Ruiz (2000). Ecociencia. Note: The poverty index in the area (79%) is also higher than the reference index estimated by SDS/POV (57% using a methodology based on the number of persons).

haphazard, has produced social problems that have impacted primarily upon indigenous peoples by reducing their historic natural habitat and sources of livelihood and gradually undermining their cultural values.

1. Biodiversity and protected areas

- 1.6 Recognizing the exceptional biodiversity of the RANE and the fragility of its ecosystems in the face of mounting threats to its flora and fauna, the Ecuadorian government has created and consolidated a series of large protected areas (PA) covering 2,468,352 hectares and representing 13% of the National Protected Areas System. (See table I.1).

Table 1.1
PROTECTED AREAS SYSTEM (SAP) OF THE AMAZONÍA NORTE

Natural Area	Area in ha.	Year established
1. Parque Nacional Sumaco-Napo-Galeras	205,249	1994
2. Parque Nacional Yasuní	982,000	1979
3. Parque Nacional Cotopaxi*	33,393	1975
4. Parque Nacional Llanganates*	219,707	1996
5. Reserva Ecológica Cayambe Coca	403,103	1970
6. Reserva Ecológica Antisana	120,000	1993
7. Reserva Ecológica Cofán Bermejo	55,445	2002
8. Reserva Faunística Cuyabeno	603,380	1979
9. Reserva Biológica Limoncocha	4,613	1985
TOTAL	2,468,352	

Source: MAE. Preparation: Conservación Internacional Ecuador, 2002.

- 1.7 These PAs and their buffer zones shelter a great wealth of biodiversity and endemic species considered among the most important in the country and of worldwide significance. Yet the PA system suffers from problems that are common to the entire national system: limited capacity to mobilize resources and to reconcile conservation and development objectives, and pressures from the encroachment of settlement and extractive activities.
- 1.8 The Government of Ecuador is making major efforts to ensure the long-term financial sustainability of the PA system and to keep it operational. As part of these efforts it established the Protected Areas Fund (FAP) with resources from the Global Environment Facility (GEF). The capitalization goal for the FAP is US\$8 million: the GEF has earmarked US\$4 million, and contributions in an equal amount are being sought from international donors. To date, US\$3 million has been committed through a debt swap with Germany. As bridge financing until the fund begins to generate income, the Ecuadorian government has allocated US\$600,000 and the Dutch government has committed US\$900,000.

- 1.9 There has been a recent move to consolidate the legal status of indigenous lands within the RANE. To date 504 indigenous communities have received legal title to 3.2 million hectares. This achievement reflects the growing maturity of indigenous organizations, which have now included environmental conservation among their demands. Nevertheless, the process remains incomplete, and indigenous people are complaining that the lands transferred to them do not coincide with what they consider their ancestral territories. The most complex case in regularizing land title is to be found in the Cuyabeno Wildlife Preserve (RPFC), one of the most important protected areas in light of its great biodiversity and the fact that it is home to several indigenous nationalities.
- 1.10 The ethnic groups living in the RPFC area of influence, and whose ancestral land claims will have to be addressed, are the Siona, Secoya, Cofán, Quichua and Shuar. Most of the outside settlers have moved in since the protected zone was declared, and are to be found in areas around the reserve. Resolution of landholding disputes for the ancestral communities located within the reserves is not considered particularly complicated.

2. Use of biological resources

- 1.11 The sustainable use of biological resources has been considered as an alternative approach to reconciling conservation and development needs. This strategy has been pursued widely in areas of great biological diversity that are severely threatened by overexploitation. There are a number of promising productive activities related to the use of biodiversity, and these can be classified according to the assets or service on which they are based: use of biological resources, ecotourism, development of genetic resources, and provision of environmental services.

3. Agricultural production

- 1.12 The agricultural potential of the Amazon region as a whole is limited. Only 10% of its territory is suitable for farming. Moreover, the physical and climatic features of the region conspire to diminish the range of potential crops, since very few commercial crops can adapt to local conditions. The agricultural landscape is further clouded by lack of credit, limited generation and transfer of technology, and a shortage of support infrastructure.
- 1.13 The predominant approach to farming involves extractive methods that are not suitable to the agroclimatic conditions of Amazon ecosystems. Farmers produce a variety of crops indigenous to the region that are used primarily for self-consumption, with a small surplus that can be sold. The main source of livelihood for producers is coffee. Another important crop, in terms of area planted, is the African palm, but this is generally grown under monoculture conditions on large plantations.

- 1.14 Coffee has been the driving force in the agricultural economy since the 1970s, and accounts for between 50% and 70% of household incomes for some 25,000 rural families in the three border provinces. For this reason, the collapse of coffee prices has had a severe impact on living standards for many farming families in the RANE. In 2001, the price of Robusta coffee dropped to its lowest point in 40 years. The coffee crisis, together with Ecuador's generally poor economic situation, the waves of migration from the Putumayo region of Colombia and the high returns that can be made from one hectare of coca (estimated at US\$5,000 year) means that the RANE is increasingly at risk of becoming a source of illegal crops.³ The Ecuadorian Coffee Growers' Corporation (CORECAF) has made a major effort to deal with this crisis by launching a support program for small farmers. The CORECAF-RANE initiative embraces more than 4,000 coffee growers and is pursuing programs based on a model similar to that of the Colombian Coffee Growers' Association (ACC).
- 1.15 The coffee crisis and the economic situation generated by the impact of the Plan Colombia on farmers led the Ecuadorian government to offer coffee growers in the three provinces a cash bonus of US\$360 for each hectare pruned.

4. The health situation

- 1.16 Health services are scarce or nonexistent and their quality is poor. The risk of waterborne diseases can be appreciated from the following statistics: the number of people with access to public drinking water systems is 80% in urban areas and 12% in rural areas of the three provinces, 28% of the urban population and 2% in rural areas is served by sewage systems, 59% of urban dwellers and 3% of rural people have garbage service.⁴ The incidence of diarrhea in the three provinces is 2,453 per 100,000 inhabitants,⁵ which is high in comparison with other developed areas such as Pichincha and Guayas, where the rates are 1,315.5 and 1,724 respectively.
- 1.17 Families in less populated rural areas draw their water by bucket from hand-dug wells without adequate sanitary protection, or from streams near their dwellings. Excrement is dumped in the open. A study of river pollution conducted in 2001 in the municipality of Shushufindi found that most surface waters carried high levels of chemical contamination from the local oil industry, and this problem was also present in urban wells.
- 1.18 There are projects under way to meet the demand for water and sanitation services, financed through international programs such as PRAGUAS and the World Bank's Ecuador Indigenous Peoples and Afro Ecuadorian Development Project

³ FUNDAGRO. Final Report.

⁴ National Evaluation of Water, Sewage and Garbage Services, MIDUVI/Subsecretariat of Environmental Sanitation/PRAGUAS, 1999.

⁵ Ministry of Public Health/National Epidemiology Directorate, 1990-2000 Report.

(PRODEPINE); the FISE program of the German cooperation agency Kreditanstalt für Wiederaufbau (KfW) and the Inter-American Development Bank (IDB). The Ecuadorian government has also invested its own funds, working through the Department of Potable Water and Sanitation of the Ministry of Urban Development and Housing (MIDUVI) and municipal governments. These efforts, however, have focused on people living in towns, which now for the most part have some form of water and sanitation service. The same cannot be said for the people in less populated rural areas, whose needs have gone largely unmet: the rural population continues in fact to be ignored which accounts for the rural sector's low coverage.

B. Institutional framework

- 1.19 In response to the particular security and development problems of the RANE, the Northern Development Unit (Unidad de Desarrollo Norte, UDENOR) was created in August, 2000, as an adjunct to the Office of the President, with two main objectives: giving priority attention to economic and social development of the provinces of Esmeraldas, Carchi, Sucumbios, Orellana and Napo,⁶ and preventing violence and drug trafficking.
- 1.20 UDENOR has the following responsibilities: (i) to coordinate sustainable development efforts for the five provinces undertaken by government ministries, other public-sector agencies and local and district governments; (ii) to promote productive and community-based projects; (iii) to raise international cooperation funding; and (iv) to execute projects by outsourcing to entities in the public sector, local governments and NGOs, or by force account at the donors' request.
- 1.21 UDENOR has taken the lead in preparing social and economic development programs for people living along the northern border who are affected by the Plan Colombia. UDENOR has a streamlined and efficient structure. Its Board of Directors, its highest authority, includes representatives of the central government, regional and local government and civil society.
- 1.22 Environmental management in Ecuador is the responsibility of the Ministry of Environment (MAE), created in 1996. Its functions are established in the Environment Act published in July 1999. The MAE administers the system of parks and protected areas (PAs) through the National Parks Directorate (DNP). Administration of these areas constitutes one of the major technical and financial challenges facing the MAE. It is also responsible for managing government-owned forests, but it maintains a limited presence in the forest reserves.
- 1.23 The Institute for the Eco-Development of the Amazon Region (ECORAE), created in September 1992, is a public agency with its own administrative, economic and

⁶ The provinces of Carchi and Esmeraldas, located in the Sierra and Coastal regions respectively, are the target of other donors, in particular the United States Agency for International Development (USAID).

financial autonomy as well as its own equity and a special budget, under the MAE. Its functions include: (i) formulation, coordination and dissemination of the Master Plan for Eco-Development of the RANE; (ii) coordination of investment and projects by public and private agencies; (iii) advising local governments and social organizations on compliance with environmental legislation; (iv) management and channeling of financial, scientific, and technical resources; and (v) training programs in the design and evaluation of eco-development projects. The government has allocated funding for these tasks to the Eco-Development Fund for the RANE, financed from State oil royalties.

- 1.24 The establishment of Municipal Units for Sustainable Development (UMDS) is being promoted in 13 essentially rural municipalities in the three provinces, and are responsible for promoting local development with a focus on sustainable innovations in farming and forestry. Promulgation of the new Constitution and the State Decentralization and Social Participation Act in 1998 established a legal framework for the gradual transfer of responsibilities and resources to local governments.

C. Previous experience in the RANE

- 1.25 With support from the European Union (ECU\$7 million), the MAE undertook the Environmental Management Project: Petroleum Exploitation and Sustainable Development in the Ecuadorian Amazon (PETRAMAZ) between 1996 and 2000. The main results of the project included: support for the Environmental Management System of the Ministries of Environment, Energy and Mining and of PETROECUADOR; evaluation and monitoring of environmental impacts from oil production, and environmental management measures in the oilfields; preparation of thematic information on the PAs and their buffer zones; a pilot project for ecological-economic zoning for the RPFC; support for sustainable productive projects in two pilot sectors (Cuyabeno and Aguarico). These results constitute a successful pilot experiment that could be replicated and expanded.
- 1.26 The GEF Secretariat, at the request of the World Bank, is in the final stages of approving the National Protected Areas System II, in the amount of US\$14.4 million. This program is intended to improve the sustainable management of biological diversity by strengthening the administrative and financial capacity of the National Protected Areas System. The project includes establishment of a trust fund for administration of the PAs. The GEF has contributed US\$4 million to capitalize the fund and is expecting a similar contribution from international donors (paragraph 1.9). The FAP allows special accounts to be established for individual administration of the PAs. The MAE is a member of the executive board of the FAP, and is responsible for intra-sectoral coordination.
- 1.27 The ECORAE plays an important role in planning and support for local governments in the RANE. It has prepared a series of provincial development

plans and is now working on the preparation of municipal plans. The major effort at the regional level is the proposed Economic and Ecological Zoning framework, which was based on the methodological standards agreed by member countries of the Amazon Cooperation Treaty (TCA).

- 1.28 A number of development and conservation initiatives have been undertaken by NGOs in the RANE. One of the organizations with RANE experience is the Fondo Ecuatoriano Populorum Progreso (FEPP), which has done much to strengthen grassroots organizations. Another successful experiment has been the Gran Sumaco Project. The German cooperation agency, Gesellschaft für Technische Zusammenarbeit (GTZ), is providing advisory and coordination services for the project, and is working together with national and local government organizations and NGOs.
- 1.29 The planning approach involves regional, provincial and local development plans: the Master Plan for Eco-Development of the Ecuadorian Amazon Region (ECORAE, 1998); Sustainable Development Plan for the Province of Napo (ECORAE, 2000); Local Development Plan for Quichua Nationalities of Napo (FOIN-PRODEPINE) and the strategic development plans for the major cantons.
- 1.30 As part of its mandate, UDENOR is preparing a wide-ranging support program for the five provinces that are feeling the impact of the Plan Colombia —Esmeraldas, Carchi, Sucumbíos, Napo and Orellana. The program involves projects under four main components: (i) productive development, (ii) environmental conservation, (iii) productive infrastructure, and (iv) social infrastructure. The projects identified for the provinces of Sucumbíos, Orellana and Napo will require an investment of US\$215 million over five years. These projects represent the "investment umbrella" proposed by the Ecuadorian government for the three provinces of the RANE.
- 1.31 UDENOR has moved promptly to implement projects, and has made considerable efforts at coordination with national entities and local governments. Its approach is to outsource the services. Works funded by the U.S. Agency for International Development (USAID) were contracted to the International Organization for Migration (IOM) and Care International, under the supervision of UDENOR. This system of contracting out for the administration of projects has proven itself to be quite efficient, and the Ecuadorian government hopes to continue using this approach.

D. The Bank's strategy

- 1.32 The program addresses the priorities and the strategic approach set out in the Country Paper (GN-2169-1), which mentions sustainable development in border areas and along the Colombian border as areas for special attention. This program will focus on the RANE, which lies along the border with Colombia and Peru (to

the east), an area where urgent action is needed to eliminate illegal crops and drug trafficking.

- 1.33 Ecuador's environmental strategy includes the conservation and exploitation of natural capital, control and mitigation of processes that threaten fragile ecosystems, and the promotion of environmental quality. That strategy defines the Amazon as an area for priority attention, given its rich cultural and biological diversity and the pace at which living conditions are deteriorating and the ecology is being destroyed.

E. Program design

- 1.34 The Ecuadorian government has been working with Bank support to prepare proposals for sustainable development of border areas. The 10-year Binational Development Plan between Ecuador and Peru focuses largely on the Amazon region, and includes infrastructure, social, productive and environmental projects. The Ecuadorian authorities have also requested international cooperation for developing the border area with Colombia and to forestall spillovers from the Plan Colombia. The Bank cooperated in the establishment of two advisory groups to help channel international support. The Consultative Group for the Binational Peace Plan has received offers of US\$235 million, of which at least 89% is sure to materialize.
- 1.35 The Donors' Consultative Group for the border zone with Colombia met on October 23, 2001, and succeeded in ratifying the interest of the European Community and the United States in contributing financing for projects. Some of that funding will be earmarked for the provinces of Napo, Orellana and Sucumbíos. The meeting resulted in offers of support of US\$266 million, of which 45% has now materialized.
- 1.36 The Ecuadorian government has assigned high-priority to projects in these three provinces of the RANE, with particular emphasis on productive development and environmental conservation. These projects would constitute the basis of a sustainable development program to reconcile the needs of productive investment with protecting the zone's environmental assets. Activities proposed by the Ecuadorian government would represent an effective approach to helping small farmers, and could serve as a model for other cantons, and for making use of additional funding from UDENOR and the Ecuadorian government in general. At the same time, investments and activities under the program would serve as a catalyst and a source of opportunities for the Ecuadorian government to allocate concessional and non-reimbursable funds from other donors.
- 1.37 Public borrowing constraints and the likelihood that the Ecuadorian government will be able to line up a number of donors for project financing suggest a program of small size with a significant demonstration effect that could serve as a catalyst. The program must show that the Ecuadorian government is taking a decisive and

- effective approach in dealing with an area with significant natural resources that is at the same time environmentally fragile and suffering from social conflict. The proposed program includes projects identified as priorities both in the Binational Plan for the Frontier Region with Peru and in the Plan for the Northern Frontier Provinces prepared by UDENOR. The program also addresses the priorities established in the provincial development plans proposed by ECORAE, and in the environmental strategy prepared by the MAE for the RANE.
- 1.38 The program will target the rural population living in small, isolated villages, by consolidating existing settlement in areas with agricultural potential through productive projects and sanitation infrastructure. It will also support alternatives for sustainable exploitation of the humid tropical forest, thereby helping indigenous communities and consolidating infrastructure for the management and protection of the Cuyabeno Wildlife Preserve, which is considered to have the greatest biodiversity in the RANE. The project will seek to harmonize development for settlers and the native population with the zone's rich biodiversity and its fragile ecosystems. It will also involve a significant effort at institutional coordination and strengthening, specifically by strengthening the capacity of indigenous peoples and farmers' associations.
- 1.39 The basic focus of project management is the search for complementarity and coordination with other initiatives in the zone, through a clear definition of the roles of UDENOR, MAE, ECORAE and the executing agencies, which will be selected primarily from among local development institutions such as municipalities, NGOs and producers' associations. The capacity generated in this way should serve to attract additional funding to the zone from international donors, and will serve as a channel for fresh resources that the Ecuadorian government has already budgeted for UDENOR activities.
- 1.40 UDENOR is working to implement a government policy for preventing violence and drug trafficking problems that now threaten the provinces in Ecuador's northern border region, and to forestall potential spillover effects from the so-called Plan Colombia proposed by its neighbor. In addition to UDENOR's activities, plans call for a significant military and police presence and greater public investment with the participation of local governments. All of these efforts together should contribute to governance in the area and the control of the State.

II. THE PROGRAM

A. Objective

- 2.1 The general objective of the program is to define a development model that will meet the aspirations of residents there in terms of improving their economic welfare while assuring the continued and sustainable supply of the region's rich environmental resources. This objective will be pursued through a scheme that includes support for initiatives to raise family incomes and to strengthen portions of the National Protected Areas System (SNAP) that are located in the RANE.
- 2.2 The project has a limited geographic scope within the RANE. Its specific objectives are: (i) to support productive projects that will raise incomes for small-scale rural producers while improving basic health and sanitary conditions, (ii) to protect the natural resources, biodiversity and genetic heritage within the Cuyabeno Wildlife Preserve (RPFC) and its buffer zone; and (iii) to support regional and local institutional development.

B. Description

- 2.3 The program has three components: (i) support for sustainable development activities; (ii) consolidation of protected areas (PAs) and sustainable use of biodiversity; and (iii) information and monitoring systems.

1. Productive support for sustainable development (US\$4.8 million)

a. Productive projects (US\$3.5 million)

- 2.4 This component addresses the needs of rural producers in currently occupied areas that are zoned for farming. The project will encourage farmers to shift away from low-productivity agricultural activities under a production chain development model, to adopt practices appropriate to local agro-ecological conditions, and to diversify their output, including efforts to incorporate added value to farm output and the marketing of output. These activities will be conducted in six cantons: Shushufindi, Sacha, Coca, Lago Agrio, Cascales and Tena.
- 2.5 These cantons were selected on the basis of the farming potential of the soil, and the level of unmet basic needs, the size of the area settled, the degree of producer organization, successful previous experiments and the positive response of beneficiaries, and accessibility to markets. The final selection involved consultations by UDENOR and MAE with key players, on the basis of which the Operating Plan for the first year was prepared.

- 2.6 For the selected cantons, eligibility criteria were applied, relating to type of farmer, level of income and type of production, in order to make a first cut from the more than 200 initiatives (at the idea or project profile stage) that UDENOR had received. As a second step, priorities were established using criteria relating to economic factors (business alliances, value added, adaptation and diversification), social factors (human capital development, employment and equity) and environmental criteria (conservation of biodiversity and use of clean technologies). Lastly, criteria were established for an economic and financial evaluation and for assessing institutional and environmental sustainability. In addition, attention was given to the feasibility of the production chain as a selection criterion. Although the program will finance only activities of direct benefit to farmers, this financing will be tied to the functioning of the production chain.
- 2.7 As a result of this exercise, five proposals were selected as priorities.⁷ These proposals were subjected to a more exhaustive analysis and prioritizing in light of the above criteria. Two proposals were selected for financing of the components that would be of direct benefit to the producer. The sponsoring organizations and the beneficiaries will be responsible for financing the other components. The proposals are “cushioning small-scale coffee growers from the effects of low prices in northeastern Ecuador”, presented by CORECAF, and “agro-ecological management and processing of cacao in the Ecuadorian Amazon”, presented by the Foundation for Education and Integral Development (FUNEDESIN). They were selected because of their expected impact on human capital development (in terms of training offered and number of beneficiaries), increased productivity in labor-intensive activities, and equity (projects with a clear gender component). For these proposals, economic and financial evaluations were conducted, as described in paragraphs 4.19 to 4.22.

(i) Support for small coffee growers (US\$2.5 million)

- 2.8 This project will help to protect small coffee growers from the collapse of coffee prices, and will help 2,000 growers living in poverty to diversify their output. Of these 2,000 families, 20% belong to indigenous groups (primarily Quichua). Coffee is their principal source of income, and yet they lack the technical and administrative know-how to improve their productivity and the quality of their output. Existing production levels are very low, and the proposed technological package is expected to lead to an early increase in productivity. The project will include the following activities:
- a. *Technical assistance.* 2,000 families will be given training in techniques for rehabilitating and renovating coffee groves and in sustainable management of

⁷ The projects considered included: (i) cushioning coffee growers from the effects of low prices; (ii) Amazon fruit production; (iii) development of agro-sylviculture and sylvo-pastoral activities; (iv) fish holding and processing center; and (v) agro-ecological management and processing of cacao.

diversification crops —rice, corn, pepper, cacao, sugarcane and forage crops for swine.

- b. *Campaign for the renewal of old coffee plantations.* The objective is that growers should be able to renovate one-half hectare of coffee each year, and to reduce the average size of plantation area planted from 5 to 2.5 hectares over five years.
- c. *Campaign to improve old coffee plantations.* Together with the renovation campaign, the project will promote the improvement of old plantations with the introduction of glyphosate and ground cover plants, together with pruning for plant health and rejuvenation purposes.
- d. *Introduction of semi-improved varieties of short-cycle crops (rice and corn).* Technical assistance will stress the use of certified seeds of improved varieties, weed control, use of organic fertilizers in appropriate doses, and post-harvest management. The goal of this program is to introduce semi-improved varieties for at least two cycles of one-half hectare in the case of corn and one cycle of one-half hectare in the case of rice, per farm.
- e. *Applied research.* This subprogram will accompany the technical assistance component and will provide feedback on problems detected by the team of extension workers. Research topics will focus on the development of organic technology packages; genetic research with a selection of production clones suitable to the area and the development of post-harvest techniques that will allow farmers to generate value added.
- f. *Production incentives.* The project will provide inputs, tools and agricultural materials. These inputs will be transferred directly to the farmers, and will include seeds for crop diversification, replacement of basic tools, materials for the construction of coffee drying shelters.
- g. *Marketing of coffee and diversification products.* Marketing activities will take advantage of existing domestic demand for soluble coffee. The Ultramares company, part of the Noboa Group, has shown an interest in pursuing a pilot program for buying coffee from CORECAF and/or the marketing company to be created, with the expectation of marketing some 100,000 qq per year. The negotiations are expected to be completed once the Bank loan is assured.
- h. *Institutional strengthening.* This component seeks to create human capital by providing training for selected men and women in Technology Transfer Groups (GTT), in cantonal, regional and executive committees of CORECAF, in such topics as coffee development, crop diversification, administration and association leadership.

- 2.9 Bank funds will cover technical assistance costs (US\$1,081,000); equipment (US\$517,000); agricultural inputs (US\$190,000); administrative expenses and training (US\$212,000). The contribution of the beneficiaries and CORECAF will be for equipment (US\$304,000) and labor (US\$200,000). The project cost does not include additional contributions that CORECAF will make for marketing and working capital.

**(ii) Agro-ecological management and processing of cacao
(US\$1 million)**

- 2.10 The main objective is to consolidate the cacao production chain around an innovative product, "cacao nibs". Assistance will be provided to 2,000 poor families in Napo and Sucumbíos: with 1,000 of these families (50%) being brought into the program in the first year, 1,500 (75%) by the end of the second year, and all 2,000 (100%) by the end of the third year. The project has five components:
- 2.11 **Increase in cacao production and productivity.** Each family will be given assistance to improve one hectare of cacao, for a total of 2,000 hectares improved. New areas will be planted only with aromatic Amazonian cacao, at a rate of one-half hectare per farm, with the expectation of reaching 541 hectares by the end of the first year, 875 hectares in the second year and 1,000 hectares in the third year. Eighty-five percent of each producer's output will be purchased by the processing company. Of this output, 65% will be used for making "nibs", while the balance will be marketed to wholesalers looking for a quality product.
- 2.12 **Post harvest activities and domestic marketing.** The project will acquire the raw product which will be transferred to a post-harvest center for pre-processing (i.e. classification, fermenting, drying and selection of beans).
- 2.13 **Processing.** This component involves enhancing value added and includes roasting the beans, husking them, sweetening them with honey or other sweeteners, baking them and packaging them in 57 g bags. One kilogram of dry cacao will produce 13 bags of nibs, allowing for 30% loss during processing. The nibs are currently being sold in the United States only in semi-processed form, reflecting limited output capacity. For this reason, the project seeks to expand industrial capacity from 100 tons to 280 tons per year.
- 2.14 **Marketing abroad.** The project plans to develop the market in the United States through a marketing strategy that will involve participation in fairs. The Fair Trade Federation will also be asked to endorse the project, recognizing that the product is doubly attractive because it is produced in a sustainable way in the Amazon Forest, and profits are reinvested in social works in the area.
- 2.15 **Institutional strengthening.** Communities will be given help to organize themselves: this will include training for managers, efforts to ensure food security,

and a gender equity strategy. Management training will focus on rural development, community development, participation and self-management, preparation of proposals, and administration of community organizations. By the end of the third year, 37 community leaders will have been trained, 25 of them men and 12 women. As well, 10 community representatives (six men and four women) will be trained in marketing issues.

- 2.16 Although the approach of the project is comprehensive and addresses the entire production chain in the preparation of nibs, the program will finance only activities that represent direct support to the producer (technical assistance, training, extension services, post-processing transport and community strengthening). The total cost of the project is estimated at US\$2,120,000. The program will cover \$1 million. FUNEDESIN will contribute \$750,000 for expansion of the processing plant and working capital. The beneficiaries' contribution is estimated at \$370,000, primarily in the form of labor.

b. Rural environmental health projects (US\$1.3 million)

- 2.17 As a supplement to productive activities, the project will support education and help improve health and sanitation conditions in rural areas by financing studies and small-scale projects relating to: (i) household drinking water supply (hand pumps, rainwater cisterns, protection of springs); (ii) on-site excrement disposal (ventilated or water-sealed latrines, basic sanitary units etc.); (iii) household garbage disposal; (iv) training for operation and maintenance of services; (v) health and hygiene education; and (vi) small-scale water and sanitation projects in the smaller population centers where such services are lacking.
- 2.18 It is expected that these basic sanitation systems can be supplied to 1,000 of the beneficiary families of the production component. Beneficiaries will participate in execution by contributing labor and local materials. Users will be trained in administration, operations and maintenance of the systems, and in health education aspects.

2. Consolidation of PA and sustainable use of biodiversity (US\$4.4 million)

- 2.19 Of the eight zones of the National System of Protected Areas (SNAP) located in the RANE, the project will focus exclusively on the RPFC, and on the Pañacocha Forest Reserve (BPP). This protective forest constitutes the buffer zone for the RPFC, and forms part of the biological corridor that runs between Cuyabeno and the Yasuní National Park. These priorities reflect the biological importance of the area and the level of threat and the complementarity of existing programs.⁸

⁸ Intervention in the PAs of the zone supplements to the participation of the GTZ, which is financing activities in the Gran Sumaco Park, and Dutch cooperation in the Yasuní Park. USAID together with several NGOs will conduct activities in the reserves of Antisana, Gran Sumaco, Llanganates and Cayambe-Coca.

- 2.20 This component includes the following activities: (i) surveying and establishing the boundaries of the RPFC, regularizing land ownership for farms close to the main town of the RPFC, and legalizing indigenous title to lands within the area and its buffer zones; (ii) financing projects within the RPFC, flowing from the management plans, including organization and control of resource-related activities such as hunting and ecotourism; and (iii) creating or improving infrastructure and equipment for control and supervision of the reserve.

**a. Surveying and establishing the boundaries of the RPFC
(US\$1.8 million)**

- 2.21 The purpose is to enhance the integrity of the RPFC by clearly identifying its limits and regularizing landholding in its buffer areas. Title registration efforts will focus on lands belonging to settlers (farms) and those belonging to indigenous groups (ancestral lands). They will deal with properties that directly abut the reserves (first line), and with those adjacent to the first properties (second line), as well as farm properties within the so-called Cuyabeno Forest (PFC). Deeds will be issued recognizing legal title and boundaries of these properties and of the protected area.
- 2.22 This process will require attention to legal aspects relating to ownership of native forest lands belonging to the National Institute for Agrarian Development (INDA). Title will be awarded under the Interinstitutional Agreement between the MAE and INDA for approval of an integrated management plan for the awarding of lands covered by native forest or ecosystems of native vegetation that may be awarded under legislation in effect.
- 2.23 The work of regularizing land ownership in the RPFC will be conducted in two phases, relating to different geographic units within the area of influence of the RPFC: phase I will cover the administrative center [cabecera] (89,090 hectares), and phase II will cover the remainder of the reserve (670,210 hectares).
- 2.24 **Phase I — (The RPFC administrative center).** This first stage involves seven activities: (i) mapping the boundaries of the reserve, the forested areas, and the PFC; (ii) setting up a specialized information management laboratory; (iii) compiling and systematizing information; (iv) awareness and preparation of the target population (one of the most important aspects of fieldwork); (v) selection and training of local technicians for compiling information on lands to be awarded, and conducting an inventory of individual properties; (vi) processing information; and (vii) preparing a map showing individual properties.
- 2.25 The second stage involves two activities: (i) definitive demarcation of properties, including the settlement of disputes and the establishment of boundary markers together with the owners; and (ii) regularization, which includes redefining boundaries, preparation of boundary plans and reports, establishment of files, INDA

procedures, registration of awards,⁹ signature of agreements (ancestral communities), strengthening or signing agreements (ancestral communities) and preparation of a survey registry (which although not part of the title procedure will serve as the basis for monitoring information).

- 2.26 **Phase II —the remainder of the RPFC.** This involves working with the ancestral communities living within the RPFC, and demarcating their boundaries.

b. Control and supervision program for the RPFC (US\$1.3 million)

- 2.27 Establishment of an integrated system of control and supervision will ensure that the rules governing the reserve (established in the reserve's master plan) are observed, that the zoning is socially accepted and respected, and that extractive activities are not conducted in areas where they are prohibited, that visitors have the appropriate permits and that they do not violate the rules. As well, the system will ensure that tourism businesses respect the established rules, that there is no poaching, illegal lumbering, or squatting within the reserve, and that oil companies comply with operating regulations.
- 2.28 A key feature will be participatory management, as a means of giving local players a substantial stake in management activities. The following measures will be taken:
- a. Establishment of a political framework for working with the various local players in the reserve, including negotiation of a treaty on the use and management of natural resources between the MAE and the Zancudo community, the revision and adjustment of existing treaties between the MAE and the six indigenous communities within the RPFC, and implementation of cooperation agreements between the MAE and the settlers' federations (Federation of Cuyabeno Settlers' Cooperatives, FECOCC, Federation of Farmers' Organizations of Aguas Negras, FOCAN, and "12 de octubre"), as well as monitoring the cooperation agreements.
 - b. Establishment of a training program in PA management for technical personnel of the RPFC. This includes the design, validation, implementation and evaluation of a PA management-training program.
 - c. Introducing an integrated control and supervision system in the RPFC, which will include upgrading existing infrastructure, the design and construction of new infrastructure in specified administrative zones, equipment for the integrated communications system, and maintenance of infrastructure and the operating system, design and establishment of an appeals process, design of

⁹ Land title work will be financed through the Rural Land Regularization and Administration Program (1376/OC-EC).

forms for compiling data on control and supervision and on biological and social-environmental considerations.

- d. Collecting and computerizing information in the Tarapoa administrative center—responsibility of Reserve personnel, conservation officers and community park wardens.

c. Projects for making use of biodiversity (US\$1.3 million)

- 2.29 Product lines were selected using a combination of criteria, including considerable market potential (local, regional or international), local group interests, and explicit government policies and consistency with sustainable use in accordance with regional zoning. Based on these considerations, the program will promote projects with high market potential for the following products: medicinal plants and derivatives (phytopharmaceuticals and essential oils), wildlife, Amazonian fruits, balanced feeds with local inputs, ecotourism and minor forest products.
- 2.30 On the basis of market information and management and production considerations, a menu of eight projects was selected, of which two are at the feasibility stage, two at the prefeasibility stage, and four exist as profiles.¹⁰ Each product line will require work in one or more of the following areas: (i) research, (ii) training, (iii) planning, and (iv) development of pilot projects.
- 2.31 During the design of the program, two initiatives were identified as having special potential because of their market prospects and the experience of their sponsoring organization. These two initiatives are: (i) "preparation of phytopharmaceutical products and derivatives of medicinal plants", and (ii) "breeding and marketing the Arrau turtle". These two initiatives would use US\$320,000 from the program. The balance of this subcomponent will be used to finance projects submitted in accordance with the OR (see paragraph 3.8).

(i) Preparation of phytopharmaceutical products and derivatives of medicinal plants with the Quichua communities of the Federation of Indigenous Organizations of Sucumbíos (FOISE)

- 2.32 This project calls for establishing a small processing plant to prepare phytopharmaceutical products, such as ointments, syrups, creams and dyes; medicinal plant derivatives such as tea, tablets and capsules; and extraction of essential oils for the production and marketing of phytopharmaceuticals. The objective is to substitute current demand within these communities for traditional medicines with these new, lower-priced products.

¹⁰ Projects identified in advance as promising include: processing medicinal plants and derivatives; wildlife (for breeding purposes); Amazonian fruits; and native inputs for balanced feeds; use of wood for minor forest products; ecotourism and community tourism; genetic resources; bio-prospecting; and environmental services.

- 2.33 This project includes the following components: (i) establishment of the processing plant together with a laboratory, for which the FOISE will dedicate a piece of land; (ii) generation and transfer of traditional and scientific knowledge, preparation of phytopharmaceutical products and their derivatives and elaboration of the management plan; (iii) institutional strengthening, in order to consolidate the organizational structure of the enterprise in terms of participation, administration and monitoring; (iv) obtaining sanitary certification; and (v) supporting the design and implementation of a marketing strategy. An aspect of particular importance will be to obtain certification for products before attempting to market them. As a condition for marketing support, the FOISE will have to obtain these permits. The FOISE will not be authorized to distribute products until they have the required authorization and health permits, pursuant to domestic regulations.
- 2.34 The estimated cost of the project is US\$304,000. FOISE will contribute land, the cost of constructing a laboratory, and working capital. This contribution amounts to US\$94,000. The program will pay for research, technical assistance, incorporation expenses, marketing support and advertising costs, in the amount of US\$210,000.

(ii) Increasing the population of and marketing the Arrau turtle in the RPFC

- 2.35 This project to increase the population of the Arrau river turtle (*Podocnemis unifilis*) in the RPFC will continue a successful effort launched more than 10 years ago by the Cofán community of Zábalo in five riparian communities on the Aguarico and Cuyabeno rivers.
- 2.36 The Arrau river turtle (locally known as the charapa) is widely eaten as a source of protein by communities in the region, and for this reason its population has been decimated. The project is intended to restore the numbers of this turtle, so that a portion can be marketed as a source of income. The idea is that some of them can be sold as pets accompanied by a certificate of repopulation. A further benefit of the project will be to increase the availability of animal protein for people living in the RPFC.
- 2.37 The total cost of the project will be US\$205,000. The community will provide land for the breeding pools and will pay wage costs for operating them. This contribution is valued at US\$95,000. Bank funds will cover technical assistance, equipment and materials, establishment of the micro-enterprise, and product promotion and marketing (US\$110,000).

3. Information and monitoring systems (US\$1.09million)

- 2.38 The program will strengthen local institutions that provide specialized information for regional planning and development purposes. One such institution is the

National Meteorology and Hydrology Institute (INAMHI), which will install rainfall and weather monitoring stations to support productive activities and river navigation; another is the Institute for Ecological Development of the Amazon Region (ECORAE), which provides mapping services and databases for the three provinces. The additional information that UDENOR-MAE will generate will be field-positioned and entered into this information system, as support for management decision making within UDENOR-MAE. Maps and other geographic information will be prepared for the three provinces at a scale of 1:50,000 thus providing more accurate spatial information of the area. The project will also strengthen the Environmental Information Center (CIAM) of the MAE, for mapping the reserve and its buffer zones at a scale of 1:25,000. It will also support formal adoption of the Economic and Ecological Zoning (ZEE) proposed by the ECORAE.

- 2.39 The work of strengthening indigenous communities and organizations and of designing projects consistent with their "lifestyles" will be financed through a nonreimbursable technical cooperation grant of US\$500,000, which will be processed in parallel with the loan. This technical cooperation will use resources from the Bank's Fund for Special Operations and will be implemented by the Confederation of Indigenous Nationalities of the Amazon (CONFENIAE). The technical cooperation activities will be coordinated sequentially with those of the loan so that projects justified by preinvestment studies will be part of the works planned for years two and three. As part of the joint activities envisaged for UDENOR and CONFENIAE, financing will be provided for a radio station to broadcast in the indigenous languages of the zone.

C. Cost and financing

- 2.40 The total cost of the program is estimated at the equivalent of US\$12.5 million. The Bank will finance US\$10 million from its Ordinary Capital. A breakdown of the budget is found in Table 2.1, costs by component.

Table 2.1
COST BY COMPONENT
(in US dollars)

Categories of investment	IDB	Local	Total	%
1. Administration and Monitoring	1,660,000	0	1,660,000	13.3%
a) Administrative Unit-Operations Supervisor	1,460,000	0	1,460,000	
b) Audit	200,000	0	200,000	
2. Productive Projects	4,026,000	774,000	4,800,000	38.4%
a) Diversification of coffee plantations	2,000,000	500,000	2,500,000	
b) Diversification of cacao plantations	900,000	100,000	1,000,000	
c) Basic sanitation	1,126,000	174,000	1,300,000	
3. Consolidation of AP	3,400,000	1,000,000	4,400,000	35.2%
a) Biodiversity Projects	830,000	470,000	1,300,000	
b) Delimitation of RPFC	1,700,000	100,000	1,800,000	
c) Control/Supervision of RPFC	870,000	430,000	1,300,000	
4. Information and monitoring systems	564,000	526,000	1,090,000	8.7%
a) GIS ECORAE	0	350,000	350,000	
b) GIS CIAM	0	120,000	120,000	
c) INAMHI hydrometeorological stations	264,000	0	264,000	
d) Native language radio broadcasts	300,000	0	300,000	
e) GIS UDENOR	0	56,000	56,000	
5. Unallocated – Contingencies	250,000	200,000	450,000	3.6%
6. Financing costs	100,000	0	100,000	0.8%
a) Interest*	0	0	0	
b) Inspection and Supervision	100,000	0	100,000	
c) Credit fee*	0	0	0	
TOTAL	10,000,000	2,500,000	12,500,000	
Percentage	80%	20%	100%	

* Ecuadorian government will pay interest charges and credit fee.

D. Administration and supervision

2.41 This category (13.3% of the total cost) represents the cost of the Program Administration Unit (PAU) in UDENOR and contracting of the Operations Supervisor (OS) (US\$1.46 million). These activities include financing for program monitoring and funding for the annual, midterm, and final evaluations. The sum of US\$200,000 has been earmarked for audits.

E. Direct costs

2.42 The direct cost of the three components amounts to US\$10,290,000 (82.3% of the total cost). It is broken down as follows:

- a. Financing for productive projects (US\$4.8 million). The loan will provide US\$2 million in support of small coffee growers and US\$900,000 in support of small cacao producers. The local contribution for these projects will amount to US\$500,000 and CORECAF, as working capital and microcredit. Beneficiaries will contribute US\$100,000 in labor. The loan will provide US\$1,140,000 for the construction of basic sanitation systems. The community will contribute labor and materials amounting to US\$160,000.
- b. Financing for PA consolidation and biodiversity exploitation projects (US\$4.3 million). The loan will provide US\$1,800,000 for contracting the firm that will survey the borders of the RPFC and regularize land titles within its buffer area. The Ecuadorian government will contribute US\$640,000 towards this contract, drawn from the budget of UDENOR. For the RPFC control and supervision component, the loan will finance US\$870,000 for equipment, payment of community park wardens and training. The local contribution (US\$430,000) will cover incremental personnel costs in the MAE and additional transport and accommodation costs for fieldwork, from the budget of MAE and the Environmental Fund contribution. The loan will provide up to US\$830,000 (of which US\$320,000 is pre-allocated) for financing biodiversity projects, against the local contribution of US\$470,000.
- c. Financing for information and monitoring system (US\$1.09 million). The Ecuadorian government will pay for information system equipment and software for ECORAE, MAE and UDENOR and the socialization of the proposal for Economic and Ecological zoning (US\$526,000), whereas the loan will cover water level and meteorological stations (US\$264,000), and radio transmission equipment (US\$300,000).

III. PROGRAM EXECUTION

A. Execution scheme

- 3.1 The executing agency for the program will be UDENOR, through the specially created Program Administration Unit (PAU). In line with its contracting-out policy, UDENOR will hire a specialized agency (OS) to negotiate contracts and supervise implementation. The PA Consolidation and Sustainable Use of Biodiversity component will be co-executed by the MAE. A co-execution agreement will be signed for this purpose between UDENOR and the MAE.¹¹ **Signature of the contract between UDENOR and the MAE will be a condition precedent to the disbursement of funds under the PA consolidation component.**
- 3.2 UDENOR and the MAE have established a Program Coordination and Supervision Committee, which worked very effectively during preparation of the studies. During execution, the committee will be able to invite participation by other entities of the Ecuadorian government and the local government, representatives of civil society and the OS. The committee will be responsible for general coordination and supervision, and for ensuring compliance with Ecuadorian government policies and strategies for the region. It will also be responsible for defining policies, strategies, operating standards and coordination. The PAU will provide technical secretariat services for the committee.
- 3.3 The PAU will report to the manager of UDENOR and will have the following major functions: (i) administration, coordination, supervision, control and financial monitoring of the program; (ii) opening of specific and separate Bank accounts for handling program funds relating to the Bank's financing and the local counterpart contribution; (iii) transferring funds to executing agencies and administering the OS contract; (iv) maintaining an accounting and financial system for proper control of program investments; (v) preparing and processing disbursement requests with the Bank; and (vi) taking all necessary steps to ensure that contractual provisions are respected.
- 3.4 Disbursements will be made through a revolving fund amounting to 5% of the loan. During program execution, the ex post modality will be used for reviewing supporting documentation for procurement and contracting of goods and services and disbursement applications. **UDENOR will present semiannual reports on the status of the revolving fund within 60 days after the close of each six-month period during program execution.**

¹¹ The Bank has reviewed a draft of the contract and has found it satisfactory.

- 3.5 The PAU will consist of a director, a general coordinator, a GIS specialist, a technical assistant and an accountant. UDENOR staff will provide technical and administrative support. The five full-time positions in the PAU will be financed with Bank funds. In addition, the PAU may hire short-term consulting services as needed, to a total of 12 consultant-months. **Creation of the PAU within UDENOR and hiring of the director of the PAU will be a condition precedent to the first disbursement of the loan.**
- 3.6 The institutional analysis identified some special characteristics that the OS for this program should have, in light of the security situation and the higher risks present in the zone, its environmental fragility and the social sensitivities of indigenous people and settlers. This will require entities that not only have technical and administrative capacities but that can demonstrate long experience in the area and acceptance by local communities and governments. Six international entities active in the area were evaluated in terms of their institutional capacity. These entities — GTZ, CARE Ecuador, Inter-American Institute for Cooperation on Agriculture (IICA), National Resources Institute (MRI), IOM and the United Nations Development Program (UNDP) — make up the short list of entities that will be invited by UDENOR to compete for selection as the program OS. Cost will be one of the OS selection criteria. **Contracting of the OS will be a condition precedent to the first disbursement of the loan.**
- 3.7 The program OS will have the following functions: (i) negotiate contracts and conduct tendering on behalf of UDENOR; (ii) provide technical supervision for program activities; (iii) maintain adequate accounting, financial and internal control systems for the handling of funds; (iv) organize the accounting system to provide the documentation needed to verify transactions and to facilitate timely preparation of financial statements for the program; (v) prepare and submit disbursement applications and documentation of the use of funds, as well as semiannual reports on use of the revolving fund, on the basis of information provided by the co-executors; (vi) maintain proper records of supporting documentation for disbursements; and (vii) prepare and submit financial statements for the program to UDENOR. In addition, the OS must: (i) certify and review services provided and goods and civil works received, and authorize payments; (ii) maintain specific and separate Bank accounts for handling funds from the Bank and the local contribution; (iii) allow access for Bank personnel and external auditors to the accounting and financial records and the expenditure justification documents of the program.

B. Execution of program components

- 3.8 **Operating Regulations.** The productive projects and the institutional strengthening subcomponents were predefined as indicated in Chapter II. For the environmental sanitation and biodiversity projects subcomponent, however, the Operating Regulations will apply. These will include the following aspects: (1) sanitation

beneficiaries will be selected on the basis of: family income level, needed improvements in the system, a supporting community organization, a commitment by families to help with construction and operation and maintenance of the system; (2) the biodiversity projects will be selected on the basis of: (i) demonstrated market potential; (ii) demonstrated organizational capacity and experience of local stakeholders; (iii) compliance with the environmental management plan; (iv) demonstrated productive use of biodiversity; (v) replicability; (vi) local commitment and support from a grass-roots organization; and (vii) demonstrated economic and social feasibility. **Approval and implementation of the Project Operating Regulations will be a condition precedent to the first disbursement of the loan.**

1. Productive projects and basic sanitation

- 3.9 The project in support of small coffee growers will be executed in accordance with Terms of Reference (TOR) to be contained in an agreement authorized by UDENOR and signed between the OS and the small coffee producers association in the program area. These producers form CORECAF. Given their structure as an association, CORECAF represents the beneficiaries and, on the basis of the evaluations performed while the program was in preparation, it would be the most suitable entity for carrying out the proposed project.¹² To be engaged, CORECAF must demonstrate: (i) that it has the necessary financial resources for project components not financed by the program; and (ii) by means of purchase contracts or other mechanisms, that the production chain is viable.
- 3.10 The cacao production project will be executed in accordance with Terms of Reference (TOR) to be contained in an agreement authorized by UDENOR and signed between the OS and the small cacao producers association in the program area. At the present time, this association receives assistance and support from FUNEDESIN. An analysis performed while the project was being prepared found that FUNEDESIN would act as the entity representing the small producers and would help them as program beneficiaries to implement the proposed project.¹³ FUNEDESIN must demonstrate (i) that it has the necessary financial resources for project components not financed by the program; and (ii) by means of purchase contracts or other mechanisms, that the production chain is viable.

¹² CORECAF will contribute resources of its own to the project to cover the working capital needs of its partners in the form of microcredit, contributions in kind of facilities on two experimental stations and resources for marketing coffee in an estimated amount of US\$949,000 over the three-period of project execution.

¹³ FUNEDESIN will contribute US\$755,000 in technical assistance costs, fixed assets, and working capital. In addition, the recurrent costs of processing the cacao nibs and marketing the product will be borne by FUNEDESIN.

- 3.11 In the case both of CORECAF and the FUNEDESIN, a time limit of six months from the date of signature of the OS contract will be set for signing this agreement. At the end of that time, if the agreement has not been signed, the money earmarked for the program may be used, subject to the Bank's concurrence, for financing other productive projects that UDENOR considers appropriate in light of criteria similar to those used in the selection of these projects. **Signature of the contracts with the Small Coffee Producers Association and the Small Cacao Producers Association shall be a condition precedent to disbursement of financing for these projects.**
- 3.12 An Annual Work Plan (AWP) will be prepared for approval by UDENOR, describing in greater detail the activities to be carried at each year, and their expected results. In preparing the AWP, key players will be consulted using a procedure similar to that employed during preparation of the project, when the AWP for the first year was defined. The projects prepared with technical-cooperation funding for strengthening native communities in the Amazon area will be considered for the AWP for years two and three.
- 3.13 Technical assistance activities will be based on the GTT system, which is a participatory methodology in which farmers learn new technologies by working with them in the field. In the coffee project, each GTT consists of a group of 10 to 25 families. The marketing component will require creation of a marketing enterprise of the cooperative type. This enterprise will function with full administrative and financial autonomy, and will negotiate strategic alliances with exporters and Ecuadorian industrialists.
- 3.14 For the cacao project, the GTTs will consist of an average of 17 producers. The project will be assisted by twelve extension workers who will cover the 120 GTTs. Planning will be established on a quarterly basis, starting with an initial diagnosis of the groups and including progress and impact indicators for measuring their performance.
- 3.15 For the basic sanitation works, the OS will hire a specialized agency, an NGO or a consulting firm, through a competition. That entity will coordinate its activities with CORECAF and the FUNEDESIN for working with families participating in the productive projects component that need basic sanitation services. Individual contracts will be signed with each beneficiary family. Selection of the families will be based on applications, in light of the priorities established in the program OR.

2. PA consolidation and sustainable use of biodiversity

- 3.16 The demarcation of the RPFC and regularization of land surrounding the reserve will be done under contract with private firms. The OS, with the approval of UDENOR and the MAE, will select and contract a specialized firm through international competitive bidding. That firm will be responsible for technical and

- legal aspects of the field campaign. The firm will be based in the main office of the MAE in Tarapoa and will establish temporary field offices as required. The firm will also be responsible for training the technical teams for field and office work, and for providing administrative and legal support to property owners.
- 3.17 The demarcation of indigenous lands will follow the provisions of Article 84 of the Constitution, which recognizes and guarantees the collective rights of indigenous, Afro-Ecuadorian and Montubio peoples and preserves their permanent, inalienable and indivisible ownership over communal lands, except where the State declares them to be of public interest. Activities will be limited to defining the perimeter and establishing communal ownership title.
- 3.18 The OS will be responsible for supervision, in coordination with MAE, INDA and the municipalities of Cuyabeno and Tarapoa. Commitments will be established in a contract to be signed between these entities. Individual ownership files will be processed by INDA in accordance with the procedures established in the Rural Land Regularization and Administration Loan (1376/OC-EC).
- 3.19 The agency that regulates, coordinates and decides activities for management and conservation of the reserve is the MAE, through its regional office and the Sucumbios forestry district. The control and supervision program will therefore be the responsibility of the head of the RPFC, as the legal representative empowered to enforce regulations within the protected area.
- 3.20 It will be the responsibility of the area Chief, working through technical personnel, conservation officers and park wardens who are employees of the MAE, and whose costs will be covered by the MAE budget. The OS will issue contracts for construction of surveillance posts, communications, field and transportation equipment. The OS will also sign control and supervision agreements with community park wardens.
- 3.21 Under the biodiversity projects component, two demonstration projects have been selected, requiring financing of US\$320,000. The total amount allocated for financing biodiversity projects is US\$830,000, which after deducting the amounts earmarked for the two demonstration projects leaves US\$510,000 to be allocated. These funds will be administered by the OS and governed by the OR.¹⁴ Because they are demonstration or pilot projects (for which there is limited experience nationally and regionally) they will require continuous technical support, and an entity will be selected in each case to provide technical monitoring and advice. The "pre-incubator" model has shown good results in Ecuador and other countries of the region.

¹⁴ Projects valued at over US\$1.1 million were identified in advance (see paragraph 2.30)

- 3.22 For each biodiversity project a co-execution contract will be signed. The contract with the FOISE will include conditions with respect to registration and health permits before the products can be used and marketed. **Signature of these contracts will be a condition precedent to disbursements for each project.**

3. Information and monitoring systems component

- 3.23 For execution of the institutional strengthening component, contracts will be signed between UDENOR and ECORAE, INAMHI and CONFENIAE. The OS will be responsible for equipment purchases. The beneficiary agencies will be responsible for operation and maintenance of the equipment and works. **Signature of the respective contracts between UDENOR and ECORAE, INAMHI and CONFENIAE will be a condition for disbursements of resources under this component.**

C. Monitoring and evaluation

- 3.24 The monitoring system will allow for ongoing follow-up and monitoring of impacts, processes and activities under the program. It will be conducted using a dynamic web page that program participants can access readily over the Internet. UDENOR and the OS will be responsible for the monitoring system, which includes: (i) compliance with physical goals for program activities, against annual plans and specific targets; (ii) obtaining timely and useful information for program players; (iii) processing information and validating it for decision-making; (iv) measuring impacts, compliance with physical and financial targets, measurement; (v) producing program execution reports; (vi) analyzing problems that arise and taking steps to resolve them, including proposals for the coming year or period; (vii) degree of community acceptance and participation in the programs.
- 3.25 During program execution, the Country Office will work with the executing agency to prepare annual evaluations. A mid-term evaluation and the final evaluation of the program will be performed with participation by the project team. The mid-term and final evaluations will review compliance with program goals and objectives, taking as their baseline the current situation in the UDENOR and evaluating progress in meeting development objectives. The mid-term evaluation will be used to decide any corrective measures needed to meet targets and objectives. The evaluations will measure progress against the indicators in the logical framework, with a particular focus on: (i) the effectiveness of productive systems and the response of farmers to the projects managed by CORECAF and FUNEDESIN; (ii) progress in regularizing land ownership in the buffer zone of the Cuyabeno reserve; (iii) effectiveness of the control and supervision system in the Cuyabeno; (iv) functioning of the basic sanitation systems; (v) application of the OR for financing biodiversity projects; (vi) verification of assumptions in the economic evaluation; and (vii) review of the AWP for the following year. The executing agency has indicated that, although it will not perform an ex post

evaluation, it will use the information from the monitoring and evaluation system to conduct an ex post evaluation of the entire UDENOR program, of which the present loan is one part, and that it will receive support from various donors as specified in paragraphs 1.30, 1.34, and 1.35.

D. Execution timetable and investment calendar

- 3.26 The program will be executed over a period of three years. Following is a summary of the program investment calendar (Table 1.3).

Table 3.1
INVESTMENT CALENDAR
(Direct costs in US\$ 000)

FUND	Year 1	Year 2	Year 3	TOTAL
IDB-OC	3,000	4,500	2,500	10,000
LOCAL	500	1,000	1,000	2,500
TOTAL	3,500	5,500	3,500	12,500
%	28	44	28	100

E. Procurement of goods and services and tendering schedule

- 3.27 The procurement of goods and services and the contracting of works will be done in accordance with procedures established in Annex B of the Loan Contract. Tenders for works and supplies have been grouped into packages. International competitive bidding will be required for procurement of goods and services exceeding US\$250,000 and construction works exceeding US\$2 million. Tendering for lesser amounts will be done in accordance with pre-contractual ad-hoc procedures agreed between the Ecuadorian government and the Bank. Consulting services will be engaged in accordance with Bank procedures. The schedule of tendering and the estimated amounts are found in Annex III (Tentative procurement schedule).

F. Accounting and audit

- 3.28 UDENOR will present semi-annual reports on the program to the Bank, within 30 days after the close of the year and midway through the year, during the program execution period. During program execution, the financial statements will be subject to external audit by a firm of independent auditors acceptable to the Bank, selected in accordance with the procedures established in Bidding Document AF-200, and on the basis of terms of reference previously approved by the Bank (Document AF-400).
- 3.29 The annual audit reports will be submitted within 120 days after the end of the year. Audit costs will be considered part of the program cost and will be covered by the

Bank loan. The independent audit firm will be contracted for the duration of program execution, subject to the Bank's nonobjection.

G. Operation and maintenance (O&M)

- 3.30 The productive project subcomponent does not include works that will require O&M commitments. The basic sanitation subcomponent will require beneficiaries to perform O&M for small household systems. Commitments to this effect will be established in individual contracts with the beneficiaries. The investment required is very low and will involve mainly monitoring and sanitary education provided under the program.
- 3.31 The PA consolidation and sustainable use of biodiversity component will require O&M for construction and equipment involved in the control and supervision program for the RPFC. The MAE will present a report on the O&M status of works and on the status of conservation of the systems. That report will be submitted annually to the Bank for 10 years following completion and startup of the works, within the first quarter of each year.

IV. PROJECT FEASIBILITY

A. Technical feasibility

- 4.1 Preparation of the project took advantage of the ZEE study of the RANE prepared by ECORAE in 1999. The results were summarized in a database, which has been updated to the year 2002 and includes 999 thematic provincial maps, 25 submodels and five final models of Economic and Ecological Zoning. That work offers an excellent tool for spatial planning and land use, raised on the interrelationship between physical, biological and social economic variables that identify homogeneous units for protection and conservation, restoration and production. The Bank program will ensure the continuity of this regional planning process.
- 4.2 The priority activities and projects have been discussed with key players in the region. Local stakeholders —indigenous nationalities, producers' associations, NGOs, local governments, donor agencies and Ecuadorian government authorities— were involved in direct consultations and workshops that examined and prioritized projects and actions to ensure that they were consistent and complementary with activities already underway and with the ZEE.
- 4.3 The productive projects are to be put forward by small farmers through their local organizations or through long-standing NGOs. The technological packages have been tested at the Payamino experimental station of the National Agricultural Research Institute (INIAP) and at the CORECAF experimental station in Sushufindi. Field activities represent an extension of activities that are already underway and have proven their effectiveness.
- 4.4 The technological packages have already had a positive impact on soil productivity and quality. It is expected that the current soil conditions of beneficiaries' lands will be improved over the medium and longer term, as the expanded ground cover afforded by coffee and cacao plantations reduces mechanical and chemical erosion of the soil.
- 4.5 The investment in consolidating the protected area will help maintain the integrity of indigenous lands and the resources that they shelter. Regularization and formal recognition of land ownership is an essential step in giving local populations an enduring stake in pursuing sustainable productive activities.
- 4.6 The technical approach to the campaigns involves an active, systematic and comprehensive process for collecting technical and legal information. The mechanism is based on the Bank's experience in other countries, as well as on efforts already undertaken in Ecuador, and the design proposed for the Rural Land Regularization and Administration Project (1376/OC-EC) that was recently approved by the Bank, and with which this program will be closely coordinated.

- 4.7 The control and supervision program for the RPFC is based on activities called for in the Reserve Management Plan. It includes active participation by indigenous peoples and neighboring communities, who will be enlisted as partners in the sustainable use of the park. There has been successful experience in working with community-based park wardens in other regions of Ecuador, including the Amazonian region, and in other countries.
- 4.8 The biodiversity projects will be treated as demonstration projects, and will be proposed by the residents themselves, within and around the PA. The pilot projects indicate the interest of these communities in such projects. In general, they involve simple procedures in processing and value added, using techniques that are already known in the country. Because they are pilot projects, the program includes the necessary technical assistance and coaching support.
- 4.9 The basic sanitation works planned do not require complex mechanisms or execution techniques, and the country already has sufficient experience and capacity for their construction. Appropriate technologies will be used that are within the technical and financial reach of the community to provide the necessary O&M. Using the "progressive technologies" criterion, the program will mean an immediate improvement in basic sanitation conditions for households as part of an emerging strategy for protecting their health: subsequently, it is expected that families will be able to improve their situation further as their economic situation progresses.

B. Institutional feasibility

- 4.10 UDENOR was established with the specific mandate of coordinating with the Office of the President, ministries, other public agencies, local governments and sustainable development programs for the RANE. It is also responsible for generating productive and community-based projects, managing the proceeds of international cooperation and executing projects through contracting-out procedures.
- 4.11 UDENOR has the necessary political support to carry out its responsibilities and its Board of Directors consists of leaders from the entities who can ensure the kind of multisector coordination and leadership required by these comprehensive programs.
- 4.12 Pursuing the contracting-out policy in UDENOR, the PAU will hire a specialized entity to serve as the OS. Six international entities with experience and a presence in the region have been identified, from among which the OS will be selected. This form of administration should guarantee efficient program management and the necessary level of field coordination. Although it was only recently established, UDENOR has already handled funds in the amount of US\$18 million.

- 4.13 The PA consolidation component will be executed with participation by the MAE. The MAE's management is being strengthened under the World Bank-GEF loan for Consolidation of Protected Areas II. This loan is now being processed in the World Bank and in the GEF Secretariat. The Ecuadorian government authorities, the GEF-World Bank project team and the IDB project team have agreed in principle that funds from the GEF project will be used to finance eligible recurrent operating costs of the RPFC, estimated at between US\$50,000 and US\$70,000 per year. **Evidence of the contribution to cover recurrent costs of the Cuyabeno reserve by the Environmental Fund constitutes a condition precedent to the disbursement of funds under the PA Consolidation Component.**

- 4.14 **Implementation agencies.** Four organizations, representing the indigenous sector, the coffee sector and a mixed-economy enterprise, each with its own legal personality, have been identified for carrying out the field work. They were selected on the basis of their activities in areas of strategic interest in the program. These entities are: CORECAF, FUNEDESIN, FOISE, and the Cofán Survival Foundation (COFANES). All of these institutions are legally constituted and their governance bodies include representatives elected by their membership and the communities they serve. They have experience in productive agricultural projects and a sense of ownership over development initiatives in their communities. Their finances are sound, and rely on financial contributions and cofinancing. They have their own capital, and audits of their financial statements have found them to be free of erroneous or false entries.

C. Financial feasibility of the local contribution and coverage of recurrent costs

- 4.15 The local contribution originates in the UDENOR budget, the MAE budget, project implementation agencies and the community. UDENOR has earmarked a budget of US\$13.5 million for investment during the fiscal year 2002. The pro forma capital budget for 2003 will be US\$30 million. The value of local contributions in terms of labor and working capital is over US\$2 million. These amounts are more than enough to cover the local contribution of US\$2.5 million over three years.
- 4.16 The control and supervision component for the RPFC is the only one that requires recurrent investments, estimated at US\$200,000 annually. These costs will be covered by the MAE budget and by a contribution from the Environmental Fund to be constituted by the GEF project, as indicated in paragraph 4.13.

D. Economic feasibility

1. Productive support component

- 4.17 Each of the productive projects was subjected to two types of analysis. The first examined the interest of individual farmers in participating in the program, while

the second was global. This exercise was accompanied by an analysis of promising projects identified for startup in the first year.

a. Coffee diversification initiatives

- 4.18 The goal is to increase incomes for coffee growers through greater productivity and diversification of output in three types of systems: (a) coffee-rice-corn-cacao; (b) coffee-rice-corn-pepper; and (c) coffee-rice-swine. It is assumed that the coffee will be purchased by domestic processors (conservative price assumptions) and that other products can be sold at local market prices. The labor needs of each farm will be met by family members.
- 4.19 Internal rates of return for individual farms are: Type A (30%), Type B (24%), Type C (34%). This suggests that farmers will be interested in remaining in the program. On average, annual farm incomes are expected to rise progressively from \$700 to \$1,500. The project calls for the area under cultivation to be increased gradually, to avoid financing constraints.
- 4.20 A project financial rate of return was estimated. Incremental revenues are the sum of additional revenues earned by each farmer under each system. The costs considered are incremental costs for each farmer and the costs of the project. The financial internal rate of return is 34%, indicating a financially viable project. The economic internal rate of return is very similar, since there is no unskilled labor employed by the project, most materials are of domestic origin, and even with import substitution reflecting greater consumption of domestic coffee by the processing industry, the shadow price of foreign currency was considered equal to 1.¹⁵ These results are also robust to different assumptions of revenues and outlays: a reduction of 20% in revenues reduces the internal rate of return to 30%, while a 20% increase in costs reduces it to 26%.

b. Transformation of cacao production

- 4.21 This project aims to increase the productivity of cacao cultivation in order to meet the growing worldwide demand for “nibs.” This product provides a higher return to the grower, and should raise average annual incomes from US\$240 to US\$760. At the project level, the financial and economic feasibility analysis is positive. As in the case of coffee, if certain social and environmental impacts are excluded, the internal rates of return are very similar.¹⁶ The results of this analysis are shown in Table 4.4.

¹⁵ This is the assumption used by the State Bank of Ecuador. The robustness of this assumption has been proven: changes of up to 10% in this shadow price have no effect on the internal economic rate of return. Other inputs such as electricity and fuel with shadow prices different than 1 are insignificant.

¹⁶ Although the nibs are an export, the shadow price ratio of foreign currency is assumed to be unity (see previous footnote).

Table 4.4
FINANCIAL ANALYSIS OF THE CACAO PROJECT

Assumptions	Net present value (US\$000) – [12%]	Internal rate of return
Base Scenario	3,450	41%
10% cost increase	669	17%
20% cost increase	(2,114)	-3%
10% revenue reduction	253	14%
20% revenue reduction	(2,946)	-5%
10% cost increase, 10% revenue reduction	(2,530)	-4%

- 4.22 The project cash flow is sensitive to variations of 20% in the assumptions. Nevertheless, the base scenario is very conservative. Moreover, there are other benefits that have not been quantified and are excluded from the analysis. On the environmental side, benefits will derive from greater use of native species (cacao is endemic to the region) and more rational use of agricultural chemicals to satisfy international demand for chocolate nibs. Social benefits include strengthening of producer organizations and greater gender equity.

2. Biodiversity exploitation projects

- 4.23 In the course of designing the program, two initiatives of especially great potential were identified: (a) breeding and marketing of river turtles in the RPFC, and (b) development of phytopharmaceuticals and derivatives of medicinal plants. Given the pilot nature of these projects, the results of the economic analysis must be regarded as preliminary since there is little validated information on the potential market for these products, and little experience to go by. Bearing these points in mind, the feasibility analysis of each initiative is discussed below.

a. Breeding and marketing of river turtles.

- 4.24 The economic benefits for indigenous peoples lie in the incomes to be obtained from selling the animals as pets, together with conservation certificates. The analysis was based on a number of pilot experiments.
- 4.25 The objective of the project is to construct ten breeding pools in four communities, for raising 1,500 turtles a year. A portion of these (8%) will be returned to the wild. In the first years, all turtles will be use for repopulating the ecosystem. As of the third year, part of production will be placed on the world pet market. The goal is to market 50%. The remaining 50% will be subject to the sale of conservation

certificates. It is assumed that each animal will be sold for US\$15.¹⁷ A similar price is assumed for the conservation certificates.

- 4.26 A further benefit will derive from the substitution of currently consumed animal protein (cattle, poultry) by the consumption of turtles beginning in the eighth year, when the turtles will have reached a sufficient level of maturity to ensure population stability. This benefit was quantified in the economic feasibility analysis. Results of the analysis are summarized in Table 4.5, Economic Feasibility Analysis.

Table 4.5
ECONOMIC FEASIBILITY ANALYSIS
(in US\$000)

Scenario	Net present value (financial) [12%]	IRR at market prices	Net present value (economic) [12%]	IRR at shadow prices
Base	182	25%	360	34%
10% cost increase	155	23%	317	31%
20% cost increase	127	21%	274	29%
10% revenue reduction	122	21%	266	29%
20% revenue reduction	62	17%	171	24%
Only 70% of marketable animals sold	96	19%	243	29%
Price of pet and certificate is US\$10	(-12)	11%	55	16%

- 4.27 As will be noted, the critical assumption is the real value at which the animals can be sold as pets. This assumption is critical for the financial analysis but not for the economic analysis, since even in this case the IRR exceeds 12%. It must also be noted that this analysis does not include a classification of benefits from stabilizing the population, in terms of biodiversity conservation.

b. Development of phytopharmaceuticals and other derivatives of medicinal plants

- 4.28 The economic benefits lie in the revenues from sales of pharmaceutical products, plant essences and oils. In addition, the production of medications will offer a lower-priced alternative to the consumption of conventional medications, which will represent an additional benefit for the local population. As with the previous project, there are no reliable demand studies and so the results presented here are merely indicative (see Table 4.6, Results of Financial and Efficiency Analysis).

¹⁷ Prices posted on the Internet range from US\$20 to as much as US\$750 for different species of turtles. On the domestic market, turtles sell at between US\$6 and US\$10. The price assumption of US\$15 is based on this analysis, although it must be noted that there are no market studies for the product.

Table 4.6
RESULTS OF FINANCIAL AND EFFICIENCY ANALYSIS
(in US\$000)

Scenario	Net present value (financial) [12%]	IRR at market prices	Net present value (economic) [12%]	IRR at shadow prices
Base	293	23%	379	91%
10% cost increase	196	20%	364	88%
20% cost increase	94	16%	349	85%
10% revenue reduction	145	18%	323	82%
20% revenue reduction	-10	12%	268	73%

- 4.29 The analysis shows that the project is not financially sound if revenues decline. Nevertheless, the economic benefits represented by access to lower-cost medications would justify investment in the project.

E. Social and environmental feasibility

- 4.30 The program zone presents special social and environmental conditions. The environmental and social strategy is to make economic development compatible with the sustainable use of natural resources and the zone's great wealth in biodiversity. To achieve these objectives, a participatory strategy was developed that allowed key players and beneficiaries to identify, prioritize and develop projects. Activities and projects are consistent with the proposals in the economic and ecological zoning framework prepared by ECORAE and they were validated during preparation of the program.
- 4.31 The consolidation of the RPFC and buffer zone will have a major and positive environmental impact, by preserving a biological wealth of worldwide importance. The RPFC, with 603,380 hectares, contains the largest system of black-water lakes in the Ecuadorian Amazon, and one of the most important in the entire Amazon basin. Because of their size, their state of conservation and their very high levels of biological diversity, this reserve, together with the Yasuní National Park, are considered the two most important PAs in the Ecuadorian Amazon.
- 4.32 The RPFC and its surroundings constitute the ancestral territory of at least five indigenous nations, the Cofán, the Shuar, the Secoya, the Quichua and the Siona, which depend on the preservation of these resources for their social and cultural survival. The feasibility studies show that the cultural practices of indigenous groups in the area are fully consistent with conservation and sustainable use of the reserve's resources.
- 4.33 The basic sanitation activities will improve living conditions for rural residents, and are expected to reduce the incidence of waterborne diseases. Health and

environmental education of the community will be an important factor in improving public health, by allowing adults and children to value and appreciate their health and improve their attitude towards preservation and protection of the environment. Such education also allow users to value water and sanitation services as a means of protecting family health.

- 4.34 In selecting the production projects, special attention was paid to incorporating environmentally friendly practices that will help to protect the region's fragile ecosystem. The instructional booklets that will be distributed as part of the program will allow all these practices to be incorporated gradually until management of the main crops proposed in the program is fully organic.
- 4.35 Another positive social impact will be institutional strengthening for the coffee growers' association and FUNEDESIN, which should become stronger over the medium term. The lack of institutional and organizational skills is a serious obstacle to development, which means that the strengthening of these institutions as important players in the zone will do much to assist the process of development in the northern Amazon.
- 4.36 The importance that the projects will give to the gender aspect is also a positive contribution for social development in the zone. Currently farming is regarded as essentially a male activity, but significant reform will require the active participation of women in decision-making with respect to farm activities. For this reason, the project will foster the emergence of female leaders by involving them in coffee drying work, and managing pepper crops, and by giving them a greater role in positions of community leadership.
- 4.37 During preparation of the studies there was an intensive campaign to identify and consult key players and enlist their participation. Conservación Internacional de Ecuador was contracted to conduct horizontal consultation with players in the zone in order to improve the social economic and environmental analysis, establish strategic alliances and build consensus for the design and implementation of the program. The results of this consultation and participation were constantly fed into the process of designing the projects, and included direct consultation with beneficiaries groups and individuals. Those consultations are documented in the technical files of RE3/RE3 under program EC-0201.

F. Program risks

- 4.38 **Weak management and limited institutional capacity.** The fledgling local governments have neither the human nor the financial resources to cope with the explosive growth of recent years. The scattered pattern of population distribution and environmental limitations create a very difficult setting. **Mitigation:** The

program's institutional design, which will strengthen coordination, and the hiring of an Operations Supervisor (OS) with considerable local experience and familiarity, will make it possible to establish timely and effective contact with the rural population and indigenous communities. The long-standing presence of NGOs, existing efforts to coordinate work between ECORAE and the municipalities, and the recent creation of the Program Execution Unit (UEP) represent a solid basis for developing an effective institutional mechanism for executing the program.

- 4.39 **Problems of insecurity and illegal activities.** The Plan Colombia has added a new variable of insecurity, particularly in a corridor extending some 10 kilometers along the border. Recent satellite images have revealed coca plantations covering some 1,300 ha within Ecuadorian territory. This area was long a source of supply for guerrilla movements and narcotics processors, and was frequently used by these groups as a refuge. The presence of these groups, the drug trade and the escalating violence constitute obstacles to legitimate activities and threats to public safety. **Mitigation:** The program is designed to offer families alternate means of livelihood and improved living standards, not only in zoned producing areas but in the conservation zones as well. In this way the program will help to prevent the spread of illegal crops. Moreover the fieldwork will be conducted by institutions and individuals familiar with the zone. Local participation will be encouraged and governance will be enhanced by strengthening the government presence during program execution.

**SUSTAINABLE DEVELOPMENT PROGRAM FOR THE NORTHERN AMAZON BORDER ZONE OF ECUADOR
(EC-0201)
LOGICAL FRAMEWORK**

Narrative summary	Indicators¹	Means of verification	Major assumptions
A. Goal			
1. To support establishment of sustainable productive systems in the Amazon region of northern Ecuador and support consolidation of the Protected Areas System.	1.1 Lower incidence of soil-use conflicts in the six cantons served directly by the program. 1.2 Unmet Basic Needs indicator reduced in the six cantons served directly by the program.	1.1 Economic-ecological zoning map 1.2 Survey and reports of INBI and Environment Ministry statistics	1.1 Proposed Economic-Ecological Zoning adopted
B. Purpose			
1. To support productive projects that will raise family incomes and to finance basic household sanitation systems for small farmers in six selected cantons. 2. To protect natural resources, biodiversity and the genetic heritage in the Reserva de Producción Faunística de Cuyabeno (RPFC) and its buffer zone. 3. To support regional and local institutional development.	1.1 Incomes for 2000 coffee growing families increased from US\$700 to US\$1,500; incomes for 2000 cacao farmers increased from US\$240 to US\$760. 2.1 Indicators of biodiversity threats reduced in the RPFC and its buffer zone (deforestation, illegal squatting, trafficking in endangered species). 3.1 Investment planes negotiated and information systems improved. 3.2 Plans to protect the indigenous way of life are in place.	1.1 Surveys and reports of UDENOR, MAE and the Operations Supervisor 2.1 Survey and reports of INBI and Environment Ministry statistics. 3.1 Survey and reports of INBI and Environment Ministry statistics, UDENOR y CONFEINAE 3.2 See 3.1	1.1 Situation of insecurity in the zone is brought under control

¹ The base line is available in the RE3/RE3 files, specifically the RAE economic and ecological zoning reports and the RANE major indicators report.

Narrative summary	Indicators ¹	Means of verification	Major assumptions
C. Components			
1. Support for sustainable production and development a. Systems for producing and marketing coffee and cacao improved with the participation of small producers in six selected cantons. b. Sustainable basic sanitation systems operating on small farms.	1a.1 Productivity of improved coffee varieties rises from 6 qq/ha to 20 qq/ha in pruning areas. 1a.2 Productivity of rehabilitated cacao rises from 3 to 8 qq /ha-year. 1a.3 Productivity of improved cacao reaches 16 qq/ha-year. 1b.1 1000 household sanitation systems in place. 1b.2 1000 families given basic health and hygiene education and training in operation and maintenance of their systems.	1a.1 Surveys and monitoring reports of UDENOR and reports of the Operations Supervisor (OS) 1a.2 See 1a.1 1a.3 See 1a.1 1b.1 See 1a.1 1b.2 See 1a.1	1a.1 Ecuadorian government maintains priority in allocation of resources.
2. Consolidation of PAs a. Reserva de Producción Faunística de Cuyabeno delineated, process for regularizing land title implemented and an effective control and supervision system in operation. b. Opportunities for productive use of biodiversity developed in protected zones and their buffer areas.	2a.1 RPFC delimited and demarcated. 2a.2 806.280 ha of ancestral occupancy regularized. 2a.3 4.500 rural properties in the process of regularization. 2a.4 8 control and supervision zones established in the RPFC. 2b.1 Two promising biodiversity projects operating in 2004 and 5 projects underway by the end of the program.	2a.1 Reports of UDENOR, MAE and OS 2a.2 See 2a.1 2a.3 See 2a.1 2a.4 See 2a.1 2b.1 See 2a.1	
3. Information and monitoring Systems a. Improved water and weather monitoring systems. b. Improved information systems.	3a.1 Hydrology system operational 3b.1 MAE-UDENOR ECORAE information system operational.	3a.1 Reports of UDENOR, ECORAE, CONFENIAE and MAE 3b.1 See 3a.1	

Narrative summary	Indicators ¹	Means of verification	Major assumptions
c. Native language communication system implemented.	3c.1 1 radio station broadcasting in native languages.	3c.1 See 3a.1	
D. Activities			
1. Support for production and sustainable development			
a. Support for small-scale coffee growers.	1a.1 [Budget] Support for 2,000 coffee growers (US\$2,5 million)	1a.1 CORECAF reports	1a.1 Components implemented.
b. Support for ecologically sound production of cacao.	1b.1 [Budget] Work with 2.000 cacao growers (US\$1 million)	1b.1 FUNEDESIN reports	
c. Study and construct small-scale basic sanitation projects.	1c.1 [Budget] Service to 1,000 families (US\$1.3 million)	1c.1 OS reports	
2. Consolidation of PAs			
a. Demarcation of the RPFC and regularization of occupants in the buffer zone.	2a.1 [Budget] Demarcation / regularization of lands (US\$1.8 million)	2a.1 MAE-OS reports	2a.1 Components implemented.
b. Control and supervision in the RPFC.	2b.1 [Budget] Control and supervision program (US\$1.3 million)	2b.1 See 1a.1	2b.1 Components implemented.
c. Development of pilot projects with indigenous communities.	2c.1 [Budget] Financing for pilot projects (US\$1.2 million)	2c.1 See 1a.1	2c.1 Components implemented.
3. Information and monitoring system			
a. Support the development of information and analysis tools.	3a.1 [Budget] Institutional strengthening (US\$950,000)	3a.1 Reports of UDENOR and OS	
b. Strengthen communication in native languages.	3b.1 [Budget] Operation of radio station (US\$300,000)	3b.1 Reports of UDENOR and CONFENIAE	

**SUSTAINABLE DEVELOPMENT PROGRAM FOR THE NORTHERN AMAZON BORDER ZONE OF ECUADOR
(EC-0201)
TENTATIVE PROCUREMENT SCHEDULE**

PRINCIPAL AREAS OF PROCUREMENT	LOTS	FINANCING		METHOD	PRE-QUALIFICATION	COST (US\$ 000)	DATE OF PUBLICATION (QUARTER/YEAR)
		IDB	LOCAL				
A. Civil Works							
1. Office equipment, computer systems, specialized software.	VARIOUS	100	0	ICB	YES	834,000	I/02
2. Vehicles and boats	2	100	0	ICB	YES	100,000	I/02
3. Farming implements and inputs	VARIOUS	100	0	LCP	NO	707,000	I/02
4. Control and supervision equipment for the RPFC	VARIOUS	100	0	LCP	NO	460,000	I/03
B. Goods							
1. Specialized Operations Supervisor	1	100	0	LCP	YES	700,000	I/01
2. Audit firm	1	100	0	LCP	YES	200,000	I/01
3. Individual consultants for UDENOR (12 consultant/months)	VARIOUS	100	0	LCP	NO	36,000	VARIOUS
4. Firm to demarcate the RPFC and regularize land titles	1	70	30	ICB	YES	1,800,000	I/02
C. Consulting services							
1. Control and supervision booths in the RPFC	1	100	0	LCP	NO	150,000	I/04
2. Sanitation systems	2	100	0	ICB	NO	1,100,000	I/02

ICB International Competitive Bidding

LCB Local Competitive Bidding

ICP International Call for Proposals

LCP Local Call for Proposals